tech.mit.edu



WEATHER, p. 11 THU: 61°F | 50°F Partly Cloudy. FRI: 67°F | 50°F Rain Showers. SAT: 60°F | 45°F Partly Cloudy.

Thursday, October 8, 2015

'Dissolve' meeting to address inequality

Volume 135, Number 26

Prof. saw flaws in Solve conference

By Katherine Nazemi

The Dissolve "Un-conference" which despite the name is hosted in collaboration with the ongoing Solve - will tackle questions of global inequality Thursday.

The conference, which will be held in the Solve Pavilion on North Court, is a way to bring people and ideas "at the margins" into the center, says organizer Ian Condry.

In particular, the conference will look at how MIT can "dissolve the structures of power that produce today's inequalities."

"The goal is to identify common themes and to suggest possibilities for driving systemic change," according to Dissolve's website. "We will focus on bottom-up approaches."

Ten-minute discussion sessions led by anthropologists, media theorists, community organizers, and activists will touch on topics like gender inequality, community activism, climate change, and DIY health solutions. The final hour will be devoted to open discussion.

Dissolve will be free and open to

Dissolve, Page 13



The Solve Pavilion sits in North Court. The four-day conference addresses global challenges in education,

Solve conference gathers 'change agents,' takes on global problems

MIT hosts talks and workshops for experts, leaders in business

By Emma Bingham STAFF REPORTER

Leaders from academia and business alike gathered this week for the Solve conference, hosted by MIT to address key challenges in four fundamental areas: education, healthcare, energy, and infrastructure.

Each of the four "pillars" of Solve — Learn, Cure, Fuel, and Make — focused on a central objective and asked key questions to break the challenges down into smaller problems. The four-day conference let invited "change agents" explore these topics in depth through keynote speakers, debates, roundtables, demonstrations, and workshops.

Most Solve events were private, and held in various places around campus, such as Kresge and the MIT Media Lab, and particularly the glass-walled Solve pavilion installed temporarily in North Court, in front of Building 76. A few were open to the public, such as the Roundtable events for

the Fuel and Learn pillars, held in MIT Bartos Theater.

The cost to attend Solve ranged from \$10,000 to \$100,000, although this fee was either waived or sponsored for some attendees. This money, billed as "membership" fees, will go toward the costs of the conference and establishing Solve as an annual event and as an "ongoing movement of exploration and impact," according to the website.

Solve, Page 9

MIT alum awarded Nobel Prize for work on DNA repair

Paul L. Modrich '86, who earned his bachelor's in biology from MIT, was awarded the 2015 Nobel Prize in chemistry on Wednesday for his work on DNA mismatch repair.

Modrich is now a biochemistry professor at the Duke University School of Medicine and an investigator at the Howard Hughes Medical Institute. He earned his

PhD from Stanford. As an MIT undergraduate, he was a resident of East Campus.

Modrich shares the 8 million Swedish kronor prize (about \$960,000) equally with Tomas Lindahl of Sweden and Aziz Sancar of the U.S. and Turkey.

Over the last four decades, the

Nobel, Page 13

MIT Connect uses algorithm to pair grad students for lunch

MIT Connect is a new initiative aimed at strengthening the sense of community among graduate students. Each week, the program pairs graduate students for one-on-one platonic lunches and provides each student with a \$10 TechCash deposit they can redeem at local restaurants or oncampus dining halls.

The matching is done by an algorithm that takes students'

interests, food preferences, and preferred lunch times into account. An introductory email is sent to matched pairs with some potential starting points for the conversation, as well as a link to an experience survey to take after the meetup.

The Connect program saw 80 graduate students sign up with-

Connect, Page 9

Alumna runs for city council seat, joins slate

Campaign prioritizes civic engagement, affordable housing, responsive Council

By Katherine Nazemi

NEWS EDITOR

Mariko Davidson MCP '13, who earned a master's degree in city planning at MIT, is running for Cambridge City Council. Two other MIT alumni are currently up for reelection.

Davidson is run with four other candidates, one of whom, Nadeem Mazen '06, is also an MIT graduate.

Among Davidson's campaign priorities are a \$15 minimum wage, more affordable housing, protected bicycle infrastructure, and community engagement in policy-making.

"Do you know what your city councillor is up to?" Davidson

As a fellow at the Mayor's Office of New Urban Mechanics, Davidson experimented with ways to involve different segments of the community in the political process, and, if elected, she plans to bring that experience to bear on community engagement in Cambridge.

"Some of the most successful ways we've found of making civic engagement engaging is making it fun," Davidson said. "Using play, using different types of technology — and even things as basic as egos — has encouraged public participation from more than just your typical constituent."

To facilitate inclusion, Davidson believes there should be an online system to complement inperson government services.

Why should you sit in a public planning meeting for four hours after work? Why isn't there some sort of [webpage] for development and public planning meetings where you can comment in real time?"

Davidson and her fellow candidates comprising Slate for Cambridge believe that better

Davidson, Page 13

Half of new MIT master's program is online

One semester at MIT is required

> By Drew Bent ASSOCIATE NEWS EDITOR

MIT introduced a pilot program Wednesday in which professionals can receive a master's degree in supply chain management (SCM) by taking the online equivalent of a semester's worth of classes and following it up with a semester on

The hybrid model includes a new academic credential, called a MicroMaster's, that students will receive after completing the online classes and passing a comprehensive exam. The MicroMaster's has no admissions process and is awarded solely based upon students' online performance.

Each of the five MITx courses in the program will cost \$150 if students pursue the MicroMaster's credential. They will be free, however, for those who just want to learn the curriculum.

Students who choose to pursue a full master's degree will then be able to use their MicroMaster's credential to strongly supplement their application, and upon acceptance, will only need to study on MIT's campus for a semester before receiving their degree.

The first MITx course begins on Feb. 10, 2016. The inaugural class of online students is expected to arrive on campus in 2017 or 2018, depending on when the final courses in the online sequence are released.

Masters, Page 13

IN SHORT

Add date is this Friday, Oct. 9.

Columbus Day, an MIT holiday, A Monday schedule will be observed the following day, Tuesday,

Depression screenings and therapy dogs will be available on the third floor of the Student Center (W20) on Friday from 11 a.m. to 6

The Annual Bike Auction will take place Thursday Oct. 15 in the parking lot at 290 Albany St. Cash and check will be accepted.

Send news information and tips to news@tech.mit.edu.

WILL REIF DECIDE **TO DIVEST?**

Climate change activists rallied last week as the MIT Corporation met. NEWS, p. 13

LET IT RAIN, LET IT RAIN

I'm in Californian heaven. CAMPUS LIFE, p. 12

RESTORE ISLAM'S GREATNESS

An MIT chaplain disagrees with Ayaan Hirsi Ali's assessment. OPINION, p. 4



THE ULTIMATE NERD

Matt Damon imbues *The* Martian's Watney with warmth and intelligence. ARTS, p. 7

FOOTBALL HAS ITS FIRST WIN

After last year's historic season, the team is off to a slower start this year. SPORTS, p. 14

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2 The Tech
Thursday, October 8, 2015

Institute Double Take

By Alexander C. Bost

STAFF PHOTOGRAPHER

For those unfamiliar with the MIT Sailing Pavilion, every time the moon is full the pavilion stays open past sunset and allows members of the MIT community to sail Lynx Catboats until midnight. On Sunday, Sept. 28, the full moon was made even more impressive by coinciding with a total lunar eclipse. I brought a Nikon D800 down to the pavilion dock and set up a series of long exposure shots. Green and white running lights on the boats made for wispy light trails as boats came and went from the dock, with the Boston skyline providing the backdrop. The 30-second exposure time allows for a low ISO of 400 and f/stop of 8, which prevents distant objects from appearing overly blurry or noisy.

Aperture:

Exposure Time:

30 sec.

Sensitivity: ISO 400

Effective Focal Length:

17 mm



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Solution to Crossword

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Israeli Dance

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The Goldwater Program provides scholarships of up to \$7500 per academic year. Sophomore scholarship recipients will be eligible for two years of scholarship support. Junior scholarship recipients will be eligible for one year of scholarship support.

If you feel you are qualified for one of these prestigious awards, please discuss this with your academic advisor or your department head.

Nominations must be from YOUR DEPARTMENT and are due at the School of Science or School of Engineering Dean's Office (as appropriate to your major) by

November 18, 2015

For further information: Contact your academic administrator; and/or the following:

http://www.act.org/goldwater/ or http://web.mit.edu/engineering/goldwater.htm

School of Engineering contact: Tanya Abikof, x3-3293, <a href="mailto:table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-table-ta

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GUEST COLUMN

Islam and the West

A call for reformation and dialogue

By Brian Aull

Last month, the MIT Center for International Studies hosted a talk by Ayaan Hirsi Ali. Raised a Muslim, she witnessed abuse of women in Muslim communities. She renounced her religion and became an activist for women's rights. Her criticisms of Islam led to death threats, and her courage was recognized by several awards. Her latest book, *Heretic*, calls for a fundamental reformation of Islam.

Ali's writings suggest that the violence and intolerance in the Muslim world are intrinsic to the religion. Jihadists, she claims, draw their inspiration from their scripture and from the example of the Prophet himself. This message creates concern among Muslims on campus. They don't interpret the scripture and history of their religion in this way; in their daily lives, they practice a religion of peace. They worry about stereotypes that feed hatred against Muslims in general. In the current atmosphere of rising anti-Islamic sentiment in the U.S., Muslim students on college campuses feel marginalized if not besieged.

The stereotypes have very old roots. In the West, Islam has long been obscured by ignorance and prejudice. American elementary school children generally learn very little about the religion. Yet they learn to use Arabic numerals for math and science, a reminder of the profound contributions that Islam made to Western civilization. The early centuries of Islam belie the idea that it was an intolerant and oppressive religion. Islamic civilization revived classical learning and made major contributions to optics, astronomy, mathemat-

ics, anatomy, law, and medicine. Contrary to the notion that Muslims converted by the sword, they set an example of religious tolerance and interfaith collaboration. Their scripture gave women rights to own property, choose their marriage partners, and have a voice in community affairs. The comparative religion author Karen Armstrong has said, "The emancipation of women was a project dear to the Prophet's heart."

Of course, the radicalism and violence in the Muslim world today are a very real danger. Rather than being intrinsic to the religion, however, I would suggest that they are gross distortions of it. In fact, they are products of the decline of Islamic civilization. The spirit of critical inquiry, known as ijtihad, characterized the golden age of Islam and was later suppressed by its leaders. Narrow orthodoxy obstructed the religion. Hypocrisy and corruption overtook its institutions. As a result, the Islamic world lacked the resilience to adapt to the rise of Western values and modern technology. This has led to the promotion of ideologies that portray the West as an enemy in a holy war, in an attempt to restore Islam to its former greatness.

Today many Muslims want change, but they feel that some of their leaders discourage critical thinking. Scholar Harold Rhode describes the pressure on young Muslims to parrot orthodox beliefs and not to ask questions. He states, "Until Muslim countries and communities in the West allow their people to express themselves freely — without fear of reprisal — it is unlikely that the Muslim world will be able to reopen the gates of *ijtihad* and again be-

come a center of science and creativity as it used to be in the early centuries of Islam."

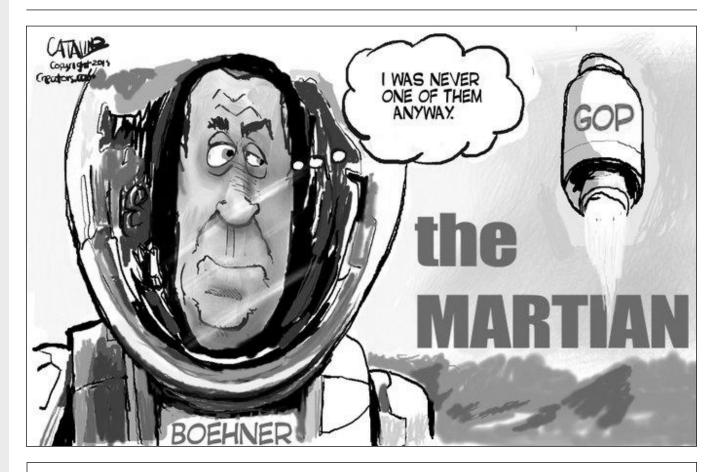
The way forward requires work on the part of everyone. On the one hand, Westerners need to move beyond stereotypes and learn more about Islam. We should understand that the Muslim world is diverse and dynamic, and that many Muslims desire reformation.

On the other hand, it is not enough for Muslims to condemn extremists, to complain that Islam has been hijacked, to scapegoat the West, or to attempt a return to the seventh century. Religious leaders need to reopen the gates of *ijtihad* and rekindle the spirit of inquiry that was once Islam's great strength. This does not mean imitating the West, but rather discovering how to apply the ideals of social justice at the core of their faith to the realities of the modern world.

Why are these objectives so important? We are endangered by a vicious cycle. To the extent that Westerners see Islam as an enemy, some Muslims who feel marginalized may become open to the summons of toxic ideologies that feed on discontent and resentment.

The needed expansion of interfaith dialogue can find a home right here on campus. The Addir Fellows program facilitates such dialogue among a small group of MIT students who enroll each year. Yet I propose the creation of a broader interfaith dialogue group to provide the entire MIT community with regular opportunities to converse and learn.

Brian Aull (PhD '85) represents the Bahá'í Faith on the MIT Board of Chaplains and is a staff scientist at MIT.



CORRECTIONS

Due to an editing error, the headline to the weather forecast last Thursday read, "Developing Hurricane Joaquin is unlikely to affect Massachusetts," though forecasts at the time indicated that the hurricane might have impacted Massachusetts this week. (Since then, the hurricane has in fact veered away from the U.S. east coast.)

OPINION POLICY

Editorials are the official opinion of *The Tech*. They are written by the Editorial Board, which consists of Chairman Will Conway, Editor in Chief Leon Lin, Managing Editor Anthony Yu, Executive Editor Kath Xu, and Opinion Editor Claire Lazar.

Dissents are the signed opinions of editorial board members choosing to publish their disagreement with the editorial.

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Sudoku

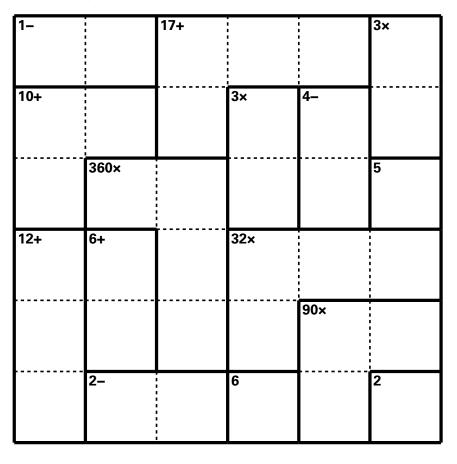
Solution, page 11

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Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

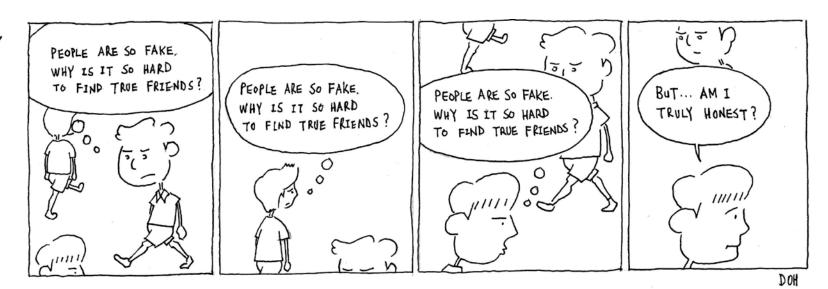
Techdoku

Solution, page 11



Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

SKETCHY by DOH



Pine Trio by Gail Grabowski

Solution, page 2

ACROSS

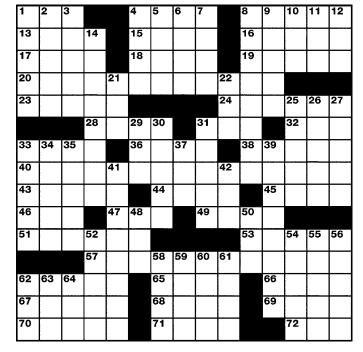
- 1 Donkey
- 4 Pet protection org. 8 Aerosol output
- 13 Highly attentive
- 15 Bath powder
- 16 Wear away
- 17 Opera solo
- 18 Apple tablet computer
- 19 Mechanical assembly-line
- 20 Neighborhood Ioan sources
- 23 Scornful expression
- 24 In the slightest
- 28 Christmas carol
- 31 Coffee alternative
- 32 U-turn from WSW 33 Grain storage building
- 36 Chauffeured car, for short 38 River-mouth formation
- 40 Sweater maker's tools
- 43 Lauder of makeup
- 44 Sandpaper coating
- 45 Speck of land in the sea
- 46 Very small

- ___-cone (summer treat)
- 49 Group of performers
- 51 Walks vainly
- 53 Theater walkway
- 57 Road repair markers 62 Spiny desert plants
- 65 Female choir voice
- 66 Tennis court dividers 67 Evaporated
- 68 Flow slowly
- 69 Wise person
- 70 Look without blinking 71 No longer wild
- 72 Boxing-match enders, for short

DOWN

- 1 Most Jordanians
- 2 Clear kitchen wrap
- 3 Backbone
- 4 Blend in a bowl
- 5 Biggest of the Three Bears
- 6 Large family
- 7 Electrical adapter letters
- 8 Woo with music 9 Everyday writing

- 10 Burglarize
- 11 Noisy commotion
- 12 "Are we there __?"
- 14 Pay attention
- 21 Sis' sibling
- 22 Ground-breaking garden tool
- 25 They ring in church towers 26 What spies gather, for
- short 27 Kid around with
- 29 Yale student 30 Specialized slang
- 31 Gin and __ (cocktail)
- 33 Veers off-course
- 34 Atlas closeup map
- 35 Soda bottle size
- 37 Supervisor: Abbr.
- 39 Newspaper issues 41 New-car tryout
- 42 When a plane is due:
- Abbr.
- 48 Code-cracking government org.
- 50 Cul-de-__ (dead end)
- 52 Speak



- 54 Move stealthily 55 Turn loose
- 56 Letters before tees
- 58 Speedy
- 59 Dog's tiny biter
- 60 Line on a shopping list
- 61 Manage somehow
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Thursday, October 8, 2015

CONCERT REVIEW

BSO opens 135th season with an all-Russian program

Evgeny Kissin plays with Andris Nelsons at the baton



COURTESY OF THE BSO PRESS OFFIC

Evgeny Kissin was the soloist in Tchaikovsky's Piano Concerto No. 1 at the BSO.

By Nancy Wang

The Boston Symphony Orchestra opened its first concert of the season in a fashion that reflected the all-Russian program: quick and to the point. Upon enter-

ing, conductor Andris Nelsons was greeted with a standing ovation; however, the audience barely had time to sit down before the BSO began Shostakovich's playful Ninth Symphony. It was easy to appreciate the lightness of the strings and winds juxtaposed with the fanfare of the brass. I found

myself captivated by Nelsons' conducting, which conveyed excitement and scrutiny to detail, and the way the orchestra responded in kind. Navigating through Shostakovich's bright Allegro, his eerie Moderato, and his loud Presto, the musicians demonstrated their versatility in both technical and emotional depth.

The all-Russian program continued with the eminent pianist Evgeny Kissin joining the stage to perform one of the most well-known pieces in piano repertoire, Tchaikovsky's Piano Concerto No. 1. Kissin brought crushing fortissimos and stable chords, which, combined with the orchestra's full sound, brought the splendor of Tchaikovsky to life. Kissin's mutability was demonstrated through his cadenza at the end of the first movement, during which he showed off his virtuosity; the runs of chords and octaves were executed confidently. Although Kissin's technique was stunning, I was even more impressed by his ability to shape and time the phrases so thoughtfully. As an audience member, I thought Kissin's ability to convey a range of emotions made the performance easier to follow and more rewarding. The rest of the audience clearly felt similarly because after the orchestra rejoined Kissin to finish the movement, the audience was left with such a feeling of conclusion and couldn't help but roar in applause.

Kissin's second movement was poignant, reminiscent of innocence and love. This movement was my personal favorite of the entire concert; the flute's opening theme was echoed by the piano, creating an interaction that reminded me of soft winter snow. Later, the winds and the piano spun a lovely conversation that was matched only by the cello and piano duet. However, I was most moved by the beau-

tiful harmony that was created when the piano, oboe, and cellos came together to recapitulate the theme.

Tchaikovsky's great piano concerto came to a close after an incredible display of Kissin's flair. Kissin and the BSO sent off the concerto's third movement with a final chord that propelled the audience to its feet. Kissin eventually sat back down at the piano bench for an encore, and the audience swiftly quieted down to listen to Tchaikovsky's *Méditation*, Op. 72.

The orchestra's final offering to the audience was Rachmaninoff's Symphonic Dances, Op. 45, which was also Rachmaninoff's final composition. Additionally, Symphonic Dances is notable for its alto saxophone solo, which can supposedly be attributed to the American composer Robert Bennett. Throughout the piece, the audience was presented with contrasts between quintessential Russian richness and lighter, more thoughtful sections. Nelsons' conducting was captivating; during the dreamy first movement. Nelsons led without a baton. weaving his hands between the piece's layers and freeing the sound. Rachmaninoff's bombastic ending inspired the audience's third standing ovation of the night.

Shostakovich, Tchaikovsky, and Rachmaninoff

Boston Symphony Orchestra

Symphony Hall

October 1, 2015

CAMPUS ARTS

Artist and theoretical physicist present kinetic sculpture

Catalyst Conversations speakers discuss relationship between art and science

By Christopher Wang

This past Monday, Kim Bernard, artist in residence at Harvard, visited the MIT List Visual Arts Center to speak on her sculpture, which had been inspired by the "predictable patterns in matter and motion." Jacob Barandes, a physics lecturer from Harvard, accompanied Bernard to provide a physicist's perspective on her artwork. Bernard and Barandes presented as part of the Catalyst Conversations lecture series, which hosts speakers who explore the intersection of visual art with science and technology.

More a dialogue than a lecture, their presentation came off as polished yet natural and conversational. Bernard and Barandes alternated speaking, where Kim described the artistic process behind her projects, while Barandes related each piece to the field of physics.

Some of Bernard's pieces borrowed directly from classic classroom models, such as a ball-and-spring model made from actual rubber balls and springs. "The Dance of Shive," a hanging wave machine constructed from nylon and bright red bouncy balls, would not look out of place in the Museum

of Science. Most of her sculptures invite participation from the viewer. For example, one installation, "Bardo State," was composed of 49 fist-sized balls of concrete, hung from the ceiling by 3-foot-long springs. Taking its name from the Buddhist time between death and rebirth, the 49 hand-formed concrete spheres bob in tranquil disunion, set in motion by gallery visitors.

Throughout the talk, Barandes connected physics and math to Bernard's work in subtle ways that related beyond the immediate appearance of the sculptures. For instance, a spinning bicycle wheel with colored balls attached to the rim allowed Barandes to begin a discussion on chaotic systems. As the wheel turns, each hall on the rim alters the motion of the whole system, which in turn adjusts the path of each ball. "Quantum Revival," 15 plastic balls hanging from pendulums of increasing length, served as a launching point for Barandes' crash course on the phenomena of Poincaré recurrences, in which a system's trajectory will return to its initial state.

The sculptures and paintings share somber gray, black, and white colors, which Bernard intentionally uses to inform the viewer of the work's serious nature. She emphasizes the motion and interactivity of her sculptures without employing whimsy.

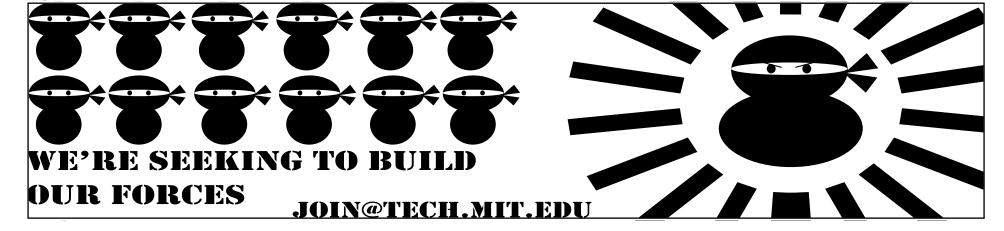
One of the central themes of the conversation focused on the distinction between science and scientific art. One audience member questioned the artistic nature of Bernard's pieces, likening the sculptures to uninspired classroom demonstrations. Bernard defended her work, explaining that her art had been foremost inspired by the beauty of motion. According to Bernard, each project's aesthetics and viewer impact were taken into greater consideration than the piece's relationship with physics. Barandes described Bernard's work as making "the patterns and rules of physics accessible" to non-specialists. However, Barandes and Bernard both see artistic value in this type of artwork beyond its relationship with science. Barandes provided his own answer to the question. From his view, the physical principles which Bernard utilizes in her work are simply a novel medium of expression, no different than paint on a painting.

For me, this argument held the most personal appeal. I can still appreciate the artwork, even without a deep understanding of physics. More importantly, Bernard's art has substance outside of it's connection to physics. Her show at the University of Suffolk proves that she can build a body of art around themes of similar color and material - most of the pieces include bicycle tire tubing in some form, either wound into balls or crocheted into skirt-like sheets. The physical concepts covered in that show are disparate and unrelated to each other. Meanwhile, the pieces' aesthetic qualities work together to form a cohesive unit. The crocheted inner tube skirts hold visual interest, even without scientific explanation. In the hands of Barandes, Bernard's kinetic sculptures connect particularly well with the field of physics. However, I am sure that an experienced dancer could equally as well convince me of the deep connections between Bernard's art and ballet.

Catalyst Conversations

It's Physical: Kim Bernard and Jacob Barandes

September 28, 2015



Thursday, October 8, 2015



Matt Damon portrays astronaut Mark Watney in *The Martian*.

By Aleksandra Stankovic

Big-budget science fiction is experiencing something of a renaissance. Director Ridley Scott's *The Martian* follows a string of commercially minded, studio-backed sci-fi movies, including Interstellar and Gravity, which play out small-scale personal dramas on a big-scale stage (outer space).

Set in the not-too-distant future, *The Martian* tracks astronaut Mark Watney (Matt Damon) as he fights to return home after being accidentally stranded on Mars by his crew, leaving him with few supplies and a lot of disco. Scott, no stranger to epic filmmaking (*Gladiator, Kingdom of Heaven, Exodus: Gods and Kings*) nor science fiction blockbusters (*Alien, Blade Runner, Prometheus*), keeps the action (both cerebral and physical) engaging while leaving room for gorgeous sequences that capture the vast, beautiful desolation of space.

Damon imbues Watney with warmth, intelligence, and good-natured humor, all while carrying large chunks of the movie on his own. Most of Watney's time is spent using his tenacious problem solving skills to overcome a series of obstacles (many of them brought on by his own ingenious solutions to earlier problems), affably addressing the audience through a running video-log he

films — a ubiquitous GoPro becoming his space-Wilson, and keeping us engaged.

In parallel, the film also traces the efforts of his crew and Earth-bound colleagues at NASA to stage a rescue mission, until, eventually, the two stories intersect. *The Martian* boasts a stellar supporting cast, including Chiwetel Ejiofor, Jessica Chastain, Kristen Wiig, Michael Pena, Kate Mara, Donald Glover, Sean Bean, and Jeff Daniels, each of whom make you wish their characters got more screen-time.

That is, in fact, the only real criticism of the movie: a lot happens in *The Martian*, and very fast. Many characters come and go. Part of this is the inevitable result of consolidating an already-packed (and, for what it's worth, terrific) novel to fit a runtime of 2 hours and 21 minutes. Adapting Andy Weir's best-selling book by the same name, screenwriter Drew Goddard does a good job excising sections of the source material without losing the original spirit of the book, but could have streamlined the story even further

For those who haven't yet read the novel, wait until after you've seen the film: except for a digression or two near the end, the film remains fairly faithful to the book, so it'll be more fun if you don't already know what's coming next, or how Mark will manage to get

himself into his next big mess by trying to get out of his last one.

In developing his story, which began as a thought experiment of how a stranded astronaut would survive on a barren planet, Weir let the science guide the plot, and a lot of the exciting things that happen in *The Martian* are even cooler because they actually could. At the same time, the story is funny and engaging in large part because the sentiments it conveys, through Mark, are so relatable: optimism, curiosity, and wonder at the bigness of the universe and the resilience of the human spirit.

The story effectively captures the transcendent power of the things that bring people together, boldly making the claim that the true value of space exploration lies in the innovation and collaboration that make the imaginable possible. While these ideas are perhaps developed more fully in the book, they remain at the heart of the film.

Perhaps the best thing the movie has going for it is timing: with Congress defunding NASA's human exploration budget, and Commercial Crew slipping even further, this is a terrific moment for filmmakers, storytellers, and dreamers in general to re-engage the public imagination through the wonder of space exploration. And to its credit, NASA is capitalizing on the excitement surround-

ing the film, hosting Matt Damon at the Jet Propulsion Laboratory as part of the film's press campaign, and presenting a panel discussion on the Agency's plans for future manned Mars mission which included Weir and NASA Administrator Charles Bolden, along with Deputy Administrator (and MIT professor) Dava Newman.

If you like sci-fi films, nerd thrillers, the space program, and/or Matt Damon, go see *The Martian*. Then go write your Congressional representative and demand more funding for NASA and human spaceflight. Then go see The Martian again! It's that good.

★★★☆

The Martian

Directed by Ridley Scott

Starring Matt Damon, Chiwetel Ejiofor, Jessica Chastain

Rated PG-13

Now Playing

ALBUM REVIEW

Electronic lyricism

Metric's newest album meets, but does not exceed, expectations

By Nafisa Syed

I jump late onto most bandwagons — many of my favorite artists are inactive, and for a year or two, Metric belonged to that unfortunate club. Their unique blend of electronic and traditional rock instruments, as well as their profound and relatable lyrics, captivated me. *Old World Underground, Where Are You Now?* (2003) was one of the first albums I listened to in its entirety, and I was surprised to find that I loved every single track. Since the group seemed to have disappeared, I was stuck cycling between the same few albums. My musical limbo ended Sept. 18, 2015, with the release of *Pagans in Vegas*.

Metric's first studio album in three years, Pagans in Vegas largely preserves their tendency toward complex lyrics and varied musical moods. Several tracks merit multiple listens to appreciate the effect created by the music and words. Even the simple assertion "It's all what it ain't" in the breezy "For Kicks" requires a second thought, especially since the track's serene movement seems to clash with the regretful lyrics. The air of mystery surrounding "Fortunes" is palpable - phrases like "She cracked, but I won't," and "It's too late to leave" coupled with the inquisitive pulse of the intro, piques the listener's curiosity. One of the most intriguing and thought-provoking tracks was "The Governess," whose acoustic mood and strangely dystopian lyrics make for an engaging listening experience.

To make lyrical matters more interesting, lead singer Emily Haines has written a letter to listeners on the Metric website discussing the songs. Although reading her thoughts did add nuance to some songs, it did not drastically shift my own interpretation. Nonetheless, I would recommend exploring the album without Haines' insights first — floating freely within the synths and twangs is part of the fun.

Metric's open-ended lyrics encapsulate much of their charm, but I was initially drawn to Metric's music because of the tenuous balance between Emily Haines' raw voice and the subtle electronic beats surrounding it. On Pagans in Vegas, the group added more electronica than ever before, drowning out Haines' voice slightly and creating a video game music effect. Metric's earlier music definitely embraced the video game sound, but the increased use of synthesizers and theremins in this album shifts the blend of traditional and electronic slightly. This addition is successful in some tracks, such as "Cascades." Here, sleek vocals melt seamlessly into glimmers of robotic tone. For the most part, however, the incorporation of extra computerized sound creates a jarring and dissonant effect. Relatively free of excess beeps, "The Other Side" contains a pleasant surprise — the guitarist and backing



ALYSSE GAFKJE

From left: Joshua Winstead, Joules Scott-Key, Emily Haines, and James Shaw are Metric.

vocalist, James Shaw, opens the track in a front and center role.

Despite the many successes of *Pagans* in *Vegas*, Metric has yet to create a track that fully captures the beautifully curated vocal, electronic, and traditional rock elements in their earlier work, although many songs come awfully close. This album is still worth a listen: Pagans in Vegas is up to par lyrically and musically, and likely has a song that will resonate with you.

★★★★☆

Pagans in Vegas

Metric

Metric Music International

Released September 18, 2015

SAKISAKISAKISAKISAKISAKIS

Heroes Reborn offers a compelling second chance for disillusioned viewers The series' reboot is a vast improvement over later seasons of the original By Karleigh Moore ARTS EDITOR I was about 50 percent excited and 50 percent nervous about Heroes Reborn. I had watched the show here and there when it was in its first season back in 2006, but it wasn't until sophomore year of college (when I bought my very own Netflix account) that own Netflix account) that I got hooked on the series. I spent a week binge-watching the first and second season, but I gave up on the third and fourth, understanding what people meant when they said the show was going downhill. I liked the comic-book feel to the show: overused tropes aside, who doesn't like a story packed with superpowers? Though the reboot premiered on Sept. 24

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Though the reboot premiered on Sept. 24 with the release of the season's first two episodes, "Brave New World" and "Odessa," the show creators released a six-part miniseries, Heroes Reborn: Dark Matters, in July 2015 to provide context for Heroes Reborn, which is set five years after the season four finale. So-called evolved humans, or Evos, begin to come out of the shadows and showcase their powers to the world - many of them were inspired to create videos following the example of Claire Bennet (Hayden Panettiere), a main character from the original series. Naturally, the humans without powers fear the Evos, and all over the world Evos are being registered, tracked, put into concentration camps, and generally discriminated against. Things get pretty heated between Evo leaders and those who seek to imprison them when what was supposed to be a peace summit in Odessa (a familiar location for returning Heroes fans) ends up being ground zero for a devastating terrorist attack.

I liked that Heroes Reborn keeps a handful of familiar characters — Noah Bennet (Jack Coleman) is one of the main characters we follow so far and there's clear build up to a reunion with Hiro Nakamura (Masi Oka). We see Micah (Noah Gray-Cabey) and Moll I was about 50 percent excited and 50 percent nervous about Heroes Reborn. I had watched the show here and there when it was in its first season back in 2006, but it wasn't until sophomore year of college (when I bought my very

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Kiki Sukezane as Miko Otomo in Heroes Reborn.

what they think is right. I like that they illustrate how Evos and non-Evos alike are affected by the danger of the tense fear-mongering climate surrounding those endowed with

superpowers.

A part of the series I've always enjoyed is the way the writers manage to interweave so many of the characters' storylines, and I always have a lot of fun trying to predict how two characters will eventually meet. The season opened with an interesting premise regarding Noah Bennett — something big happened in Odessa (apart from the obvious act of terrorism) and he can't remember anything about it (and we are led to believe that Noah willingly had his memories erased). We experience the frustrating mystery of Noah's amnesia, as he does, and I am eager to see what the big secret is.

The series has always been strong with creating complex characters and exploring compelling narratives. Though the show is entertaining for the casual viewer, more attentive and dedicated fans will have a more robust experience - details are important and with so many character arcs and subtle

clues to keep track of, a careful and critical eye is needed for the full experience. The show is packed with mysteries, cliffhangers. and it can be difficult to gauge which characters are good or bad, but there's a pretty consistent cycle of questions posed and answers discovered, so I didn't feel too disappointed when I was left wanting for specific answers; the challenge is part of the fun.

I'm excited for tonight's episode, and I encourage you to give the reboot a try, even if you agreed with the masses about the decline of Heroes in its later seasons of the original series. From what I've seen so far, Heroes Reborn looks like it has the potential to revitalize the series with an aura of intrigue reminiscent of the show's first season.

Heroes Reborn Created by Tom Kring Premiered September 24 Thursdays at 8 p.m. on NBC

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Thursday, October 8, 2015

Solve conference is part of HUBweek

4 partners organized Boston event

Solve, from Page 1

In his opening address at Solve, MIT President L. Rafael Reif said that if the conference "can make real progress," that it will serve as a "proof of concept" that "21st century universities have a special role, not only in educating future generations to live meaningful lives, but also as conveners, connectors, and problem-solvers in confronting humanity's great shared global

challenges."

Solve, which was produced by the MIT Technology Review, was part of HUBweek, a weeklong, TED-esque festival celebrating the intellectual capital of the greater Boston area. The festival was a partnership between MIT, Harvard, Massachusetts General Hospital, and the Boston Globe, and featured events that focus on "big ideas" in disciplines ranging from technology to art.

Connect, from Page 1

in 24 hours after Mohammad Ghassemi G and Tuka Waddah Al Hanai G started it last spring. A report they submitted to the Graduate Student Life Grants said that 70 percent of the students who filled out the program's final survey expressed interest in rejoining the program, while 52 percent planned to stay in touch with their buddies.

Ghassemi insists that this is

not a dating service, but is intended as an opportunity to meet new people who you wouldn't otherwise be able to meet.

"We do allow people to specify gender preferences, but most people choose the *Don't care* option in our signup form," Ghassemi said.

This fall, the program already has more than 130 people signed up, including the dean of graduate education, Christine Ortiz.

—Henry Nassif

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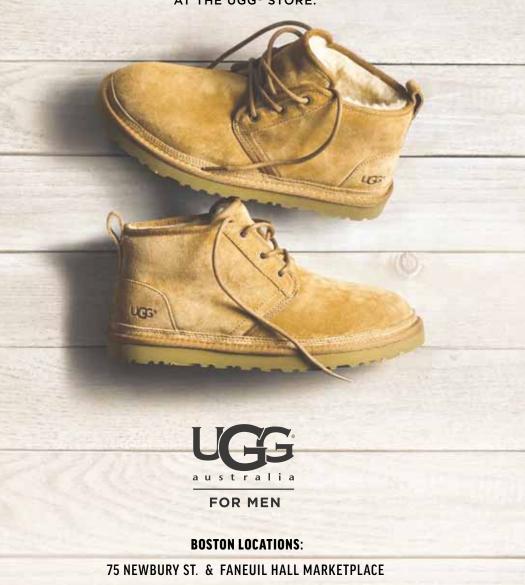
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DERTOUZOS LECTURE SERIES 2015-2016



Dr. Michael Stonebraker, MIT CSAIL

The Land Sharks are on the Squawk Box

Wednesday, October 14, 2015 MIT Bldg 32-123/Kirsch Auditorium

4:30-5:45PM

Abstract:

This Turing Award talk intermixes a bicycle ride across America during the summer of 1988 with the design, construction and commercialization of Postgres during the late 80's and early '90's. Striking parallels are observed, leading to a discussion of what it takes to build a new DBMS. Also, indicated are the roles that perseverance and serendipity played in both endeavors.

Biography

Dr. Stonebraker has been a pioneer of data base research and technology for more than a quarter of a century. He was the main architect of the INGRES relational DBMS, and the object-relational DBMS, POSTGRES. These prototypes were developed at the University of California at Berkeley where Stonebraker was a Professor of Computer Science for twenty five years. More recently at M.I.T. he was a co-architect of the Aurora/Borealis stream processing engine, the C-Store column-oriented DBMS, the H-Store transaction processing engine, the SciDB array DBMS, and the Data Tamer data curation system. Presently he serves as Chief Technology Officer of Paradigm4 and Tamr, Inc.

Professor Stonebraker was awarded the ACM System Software Award in 1992 for his work on INGRES. Additionally, he was awarded the first annual SIGMOD Innovation award in 1994, and was elected to the National Academy of Engineering in 1997. He was awarded the IEEE John Von Neumann award in 2005, and is presently an Adjunct Professor of Computer Science at M.I.T, where he is codirector of the Intel Science and Technology Center focused on big

Formerly the Distinguished Lecture Series, the series has been renamed in memory of Michael Dertouzos, Director for the Lab for Computer Science from 1974 to 2001.

The Dertouzos Lecture Series has been a tradition since 1976, featuring some of the most influential thinkers in computer science, including Bill Gates, Steven Jobs, Donald Knuth, John McCarthy, and Mitchell Kapor.

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10 THE TECH THURSDAY, OCTOBER 8, 2015





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Thursday, October 8, 2015

WEATHER

Clear Columbus Day weekend in store

By Costa Christopoulos STAFF METEOROLOGIST

Just over a week ago, forecast models remained uncertain about an intensifying Category 3 hurricane near the Bahamas. Luckily, Joaquin scooted harmlessly into the Atlantic and out of our weather forecast. By now the former hurricane has weakened into a non-tropical system, and it is expected to bringing gusty winds and rain to Spain.

The main local headline for this week is an approaching cold front that will bring showers to the area tomorrow. Southerly winds ahead of the front will kick highs into the upper 60s°F. Although the front will bring precipitation, expect relatively mild weather to continue into next week. This weekend will feature clear skies and highs around 60°F. By Columbus Day, highs will approach the 70°F mark as high pressure builds in.

Extended Forecast

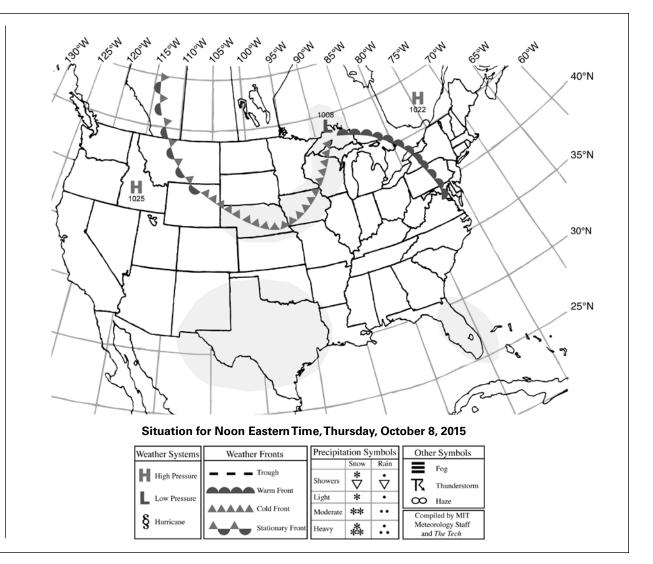
Today: High of 61°F. Winds north at 5 mph. Partly Cloudy.

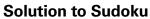
Tonight: Low of 50°F. Winds southeast at 5 mph. Partly Cloudy.

Tomorrow: High of 67°F. Winds south at 10-15 mph. Rain increasingly likely.

Saturday: High of 60°F. Winds east at 10-15 mph. Partly Cloudy.

Sunday: High of 63°F. Winds east at around 10 mph. Partly Cloudy.





from page 5

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Solution to Techdoku

from page 5

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THURSDAY, OCTOBER 8, 2015

Learning to take rain by storm

A California girl is introduced to rain

By Gillian Belton

THE FIRST YEAR

This was it. This was the day I had been dreaming of for the past few months, the day I had been fantasizing about in my mind over and over again since my official enrollment into MIT, the day I thought might never come: today was the first rain.

Coming from California, which has been in some form of a drought for most of my life, I'd been taught to value water as if the reservoirs were on their last few drops. Which, actually, currently is the case. And so, now, on this rain-filled Boston day, I felt like I was in Californian heaven.

If you were to have looked at the texting history with my family, you'd find that I'd been sending screenshots of the rain-filled Cambridge 10-day forecast for the past nine days. This wasn't one of those "California rain forecasts" that I was so familiar with. In California, if it says it's going to rain, you can bet that by the time the day actually arrives, the forecast has changed to sunny and 75 degrees. No, this was the real stuff.

Upon waking up, I could hear the splashes of the raindrops against my window; it was such a beautiful sound. I immediately sat up in bed and just stared in awe at the mysterious water droplets falling from the sky. I felt so prepared for this day. After wasting about 20 minutes or so just watching the rain, I finally got out of bed and

organized my rain gear. I had my running shoes, thick jeans, a sweater, a rain jacket, and a \$2 umbrella from Ikea, newly bought specifically for Cambridge because I didn't have one back home. I just knew this day was going to be so much fun. I mean, what could possibly go wrong?

After finishing breakfast, as I walked outside along with 30 or so other Simmons residents to catch the Tech Shuttle, I spotted someone with a tarp on top of their

This wasn't one of those "California rain forecasts" that I was so familiar with ... No, this was the real stuff.

Wow, that looks ridiculous, I thought.

It looked a bit like a Superman cape as it flapped in the wind, and I wondered why he thought he needed it. However, I quickly forgot about the tarp as my thoughts returned to the Tech Shuttle stop.

As a result of living in Simmons, which is the last dorm on the Tech Shuttle's route around campus, the shuttle was beyond full. It was so crowded that there were people practically falling out of the door, and so it took about a two-second glance to realize I wasn't going to be taking the shuttle. And so with a defeated, and seemingly unanimous sigh, everyone around me backed up away from the shuttle and started shuffling down the long trek to class. This wasn't exactly how I had expected the day to start out, but my good mood wasn't going to be ruined that easily.

As I started out my walk to class, I became super excited as I pulled out my umbrella. I guess I now know what people mean when they say "you get what you pay for," because it only took about 30 seconds before my \$2 Ikea umbrella turned inside out and became permanently useless. But even this wasn't enough to ruin my mood, and so I soldiered on.

Walking to class was most definitely a dampening experience. By the time I arrived in 34-101, I was drenched. I might as well have taken a nice and long shower, because I don't think anyone could have told the difference. My shoes made it feel like I was walking in my own personal puddle one that conveniently followed me around wherever I went.

Even though I was clearly drenched, I naively imagined that my backpack wouldn't be. And so you might imagine my surprise when, after opening up my bag before class, I found that all of my notebooks were completely drenched. The pencil marks were barely visible and I certainly couldn't take notes in them that day. Now this was the final straw for me - no one messes with my notes. No one, not even rain. In that moment, I decided I was done with this new thing called rain.

The rest of the day continued as you might imagine, as I frustratedly attempted to dry my notebooks and air out my clothes. The day had not turned out as I had expected, to say the least. My clothes were less dry, my umbrella was less functional, my notes were less readable, and my mood was less

But eventually as my notes dried and my mood improved, I realized that maybe the bad day wasn't the rain's fault, but my own lack of preparedness. Maybe, just maybe, rain boots might have been better than running shoes, a \$2 umbrella not that great of an idea, and a Superman cape actually a fantastic addition for my backpack.

When I returned home to Simmons, I immediately went online and ordered the gear I needed in time for the next rainy day. I might not have looked as stylish as before, but damn was I prepared. And so, when the next rainy day came, I was able to go out into the rain with that same stupid-happy grin that can only belong to a Californian.

Gillian Belton is a member of the Class of

THE FIRST YEAR

Escape the dome: pset stalling and Boston Calling

A much-needed musical awakening

By Chloe Yang

There are times when I can forgive myself for unleashing my inner music fangirl. Even rarer are the occasions when I can allow mvself to release her in public. During Boston Calling, two days before my first hell week, was one such occasion. In that period of prehell week, I saw armies of deadlines and tests march toward my slapdash barricade namely, the weekend — but it was too early for a call to action. All I could do was sit quietly in a corner and hope that if I ate enough chocolate, I would survive the trials to come.

During this recent pre-hell week, I had taken my first real exam of the year - I'm looking at you, 8.01 — and I wasn't surprised to find that I had received the lowest test score ever earned in my life. Though the free merchandise at career fair provided some consolation the day after, I was silently dreading the week to come — my schedule was dotted with more tests and more pset due dates. It got to the point where opening Google Calendar became a near-death experience; my life flashed before my eyes in neatly scheduled boxes.

Now, enter inner fangirl, stage left. Yes, I had a hell week to look forward to, but before then, I had a ticket to Boston Calling. I'd never been to a music concert before, and

Boston Calling would be my first. I could still swat at all-encompassing despair with a rolled-up copy of the festival lineup.

By chance, I had discovered that my friend Jake and I were going on the same day. We'd met in Concourse and bonded over our shared love of patterned pants and memorable career fair experiences (we were vultures, scavenging for free things). We agreed to meet before the festival, and we looked a pair of certified hipsters as we stepped into City Hall plaza.

Passing through the gates was like entering some paradise of perfect weather and well-dressed indie enthusiasts. Not one minute after we'd arrived, we were assailed with free sunglasses, Kind bars, and cough drops. As we bounced between the two stages in a happy daze, I could almost forget the work I had yet to do. However, like an itch I couldn't reach, I thought about my 5.111 test as I discovered the magic of live music; I mulled over my 18.01A pset as I bobbed along to the

Fast forward to nightfall. Before I even knew what had happened, the square suddenly flooded with people. Lights threaded through the darkness; artists I could actually recognize began to dominate the stages. At that point, Jake and I came to the unfortunate conclusion that we should fight our

way to the front of Alt-J's performance. We plunged into the crowd, and before we could realize our mistake, it was too late. We were

In the darkness, dizzy with Alt-J's swirling melodies and the taste of air, I felt for the first time that night that I could lose myself.

We experienced firsthand what is meant by a "crush" of people. It was chaos. I barely had space to breathe and no room to think about work. My main priority was survival. Halfway to the stage, the stream of people trying to escape and the stream of people going deeper into the audience were using the same travel routes. A human clog ensued. At one point, people were so packed on all sides that I could not move.

"At least it's warm now," someone quipped by my ear.

By the time we turned back and escaped, the music had started. From the back of the crowd, we had a full view of the stage and the mass of people. In the darkness, dizzy with Alt-J's swirling melodies, the taste of air, and the freedom to move my limbs, I felt for the first time that night that I could lose myself in the best way possible. The huge crowd made me feel anonymous - I melted away into the collective buzz of excitement, into the synchronized swivel of chilled bodies rocking back and forth to the bass.

Looking around, I felt elated. I realized that every single person at that festival had their own issues; every single person juggled with their own demons. Yet, the night was charged with happy whoops as we stomped our emotional baggage into the ground. We had problems, yes, but in the moment, all we had was love for music and awkward dance moves.

From my reference frame, I am the center of my universe. My problems are oh-so-difficult, and my life is oh-so-hard. It took an inner fan girl and a music festival to remind me there is more to life than psets — more to the world than the bubble MIT provides. I may have tests, but I also have music and family and friends and free food. That weekend, Boston called, and it told me to enjoy life.

Chloe Yang is a member of the Class of

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MIT APPLICATION ESSAYS THAT

'I am an enthusiastic foodie'

This is the first in a series of MIT application essays submitted by students who were later admitted to the Institute. The following prompt is from the 2013-14 admissions season.

Prompt

We know you lead a busy life, full of activities, many of which are required of you. Tell us about something you do simply for the pleasure of it. This isn't a trick question. We want to see how you bring balance to your life. (100 words)

Response

I am an enthusiastic foodie. I subscribe to my favorite food blogs, anxious for new recipes, and I research exotic fruits and vegetables.

Armed with knowledge but little experience, I experiment in my own kitchen. As the simple ingredients combine in harmony and delicious smells waft through my apartment, I am eager to test the final dish. Though the end result is not always perfect, I enjoy every step of preparing food.

—Elaine Lin '18

THURSDAY, OCTOBER 8, 2015 **THE TECH 13**

Master's program will triple size of on-campus class If the pilot program is successful, more courses may be offered under this model, says Reif

Masters, from Page 1

"Inverted admissions" process

MIT is calling this new paradigm an "inverted admissions" process since students will have the opportunity to demonstrate their performance in the subject material before even applying.

Professor Yossi Sheffi, the head of the SCM master's degree program, compared these "performance-based admissions" to the current model, in which students are assessed based on short, onetime tests like the GRE. He said that performance-based admissions will offer a long-term view of the SCM master's candidates' qualifications and will even allow MIT to connect with them as they're taking online classes.

When asked if an online component would water down an MIT degree, MIT President L. Rafael Reif said he thought it would rather "democratize the access to MIT" without diminishing the quality of a degree. Many people are qualified to be here, he said, and MIT's hope is to allow more of them to come to the school to learn.

While many foreign students who receive a MicroMaster's may not be able to afford to come to MIT for a semester, Sheffi mentioned the possibility that MIT would identify students excelling in its online classes and connect them with partner companies. The companies could then choose to hire the students and fund the rest of their SCM master's degrees. Sheffi said this could be beneficial to companies that are looking to expand their businesses into countries where the students come

The idea behind MicroMaster's

The pilot program is looking to accept 30 to 40 students with the MicroMaster's each semester to add to the roughly 40 students that participate in the traditional, 10-month SCM program on campus each year, thus tripling the number of students.

This increase in size was a response to the primary complaint of SCM's 50 partner companies, who wish more of their employees could go through the program, said Sheffi. SCM has already partnered with universities in other countries to offer dual degree programs where students split their time between campuses. The new pilot extends that model online.

The development of the Micro-Master's and hybrid program was also spurred by a report released August 2014 by the Task Force on the Future of MIT Education. Reif, who initiated the task force, said the ideas were "in the air" before that, but that the task force formalized them.

Also involved in the conception of the program were faculty members such as Chris Caplice, who started teaching a series of supply chain classes on MITx last fall.

Costs of the degree

In addition to paying \$150 to receive a certificate for each of the five online courses, students will pay somewhere between \$400 and \$800 for a comprehensive, proctored exam. If accepted to the SCM pilot program on campus, these students will pay at least half of the the \$65k annual tuition that traditional students currently pay. Sheffi noted that they still have to conduct market research before any of the exact prices are determined.

Ultimately, Reif said that he'd like the pilot program "to find a way to break even" so that it is sustainable.

Looking forward

While MIT has shown eagerness in bringing its curriculum, and now credentials, online, it has no desire to offer a completely online degree, Sheffi said. While many parts of an education can be learned online, he said, things like "dealing with people, leadership, communication" still need to be done in close proximity to professors and other students. The hybrid model allows for both types of learning to take place while also letting more students receive an MIT education.

MIT is using this pilot program as a means to test inverted admissions for the first time. "If it works well, and the quality is there," Reif said, "chances are it's going to continue." Although the pilot is limited to SCM for now, Reif left open the possibility that it could spread to other parts of MIT. "It's a matter of who wants to do it," he said.

Slate for Cambridge includes MIT alums from courses 2 & 6

Davidson notes electoral influence of interest groups

Davidson, from Page 1

outcomes result from getting more people involved in the policy planning process.

"The assumption is that it will get more complex and more onerous if more people are involved," Mazen said. "But other communities nearby have found that when you empower people who are thought of as community dissidents...you get a better outcome."

Engagement is especially important, as Davidson in particular believes that the way we design and build cities has a major impact on people's access to opportunities.

"I think we all intuitively understand that where you live determines your access to opportunity," Davidson said. "It's the combination of services, it's your housing, your access to transportation... your economic opportunities."

Davidson and Mazen both noted the influence of special interest groups on the election. Mazen said that almost all the incumbents took donations from special interest groups, while hardly any new candidates did. In an effort to remain independent, neither Mazen nor Davidson will accept special interest donations.

"It is just incredible to think

about the influence of money and the conflict of interest," Davidson said "Whether an incumbent is cognizant of it or not, if you accept money from a special interest group, the only way to be 100 percent sure that it's not influencing your decision making is to not take

A total of 23 candidates are competing for nine spots. Davidson said that the previous years' election had been decided by only four votes, and encouraged MIT students to register to vote before the Oct. 14 deadline.

"It's practice being a good citizen," said Mazen.

Climate rally unfurls banner near MIT board meeting

The MIT Climate Countdown ended Oct. 2 with a rally attended by more than 100 MIT students, staff, faculty, alumni, and local community members.

The rally was the last event of the week-long MIT Climate Countdown series which included discussion panels, a Q&A session, a movie screening, and a

The activists gathered in the Student Center for the rally and enjoyed rock songs performed by the band Melodeego. The band's human-powered sound equipment depended on a system of pedals, signifying their commitment to green energy.

MIT Professor Ian Condry spoke at the rally. "My concern is that when the announcement [of MIT's plan for climate action] happens, it won't be enough, and that it will be the beginning of the next stage of our fight, not the end," he said. "If we can build

our social network ... and build the movement from below, then eventually it becomes impossible to ignore."

Activists marched towards the Media Lab where MIT's board of trustees was having its annual meeting. They unfurled a banner there that read, "Stand with Science, Take Climate Action."

In June, a climate change committee appointed by President L. Rafael Reif delivered its report. Three-quarters of the committee supported divesting from coal and tar sands, among several other recommendations.

Prominent activists including professor Noam Chomsky and actor Mark Ruffalo signed an open letter to the president which pushed for divestment. Reif is expected to announce the Institute's plan to address climate change sometime in the coming

—Anshuman Pandey

Conference to feature 10 minidiscussions on social issues

Condry hopes to include people 'at the margins'

Dissolve, from Page 1

the public, unlike the Solve Conference, which is divided into public and "invitation-only" events.

Condry, a professor of anthropology, began organizing the event last year after learning about Solve.

"A few of the faculty were concerned that there wasn't enough openness for students, and the general public, and for a variety of faculty to get involved," Condry said.

Questions of inequality "didn't seem to be getting enough attention at the Solve conference," Condry said. He and other faculty wanted to create an event that would tackle these questions more directly.

'We need to build a movement. It can't just be top-down solutions that are driven by the elites at the

Condry said that he was approached by Solve and that the development."

"[Dissolve is] trying to facilitate conversations at the margins with people at the margins, because it's at the margins that you're going to find new ideas that can move to the center," Condry said. "That's been the core of my research for 20 years now; that's how I've seen cultural movements go ... and that's where we need to look today for meaningful, lasting, open-ended, and collaborative solutions

Nobel, from Page 1

three scientists have detailed, at a molecular level, mechanisms by which cells repair damaged DNA.

One way errors can be introduced in DNA is during replication, when a nucleotide on the new DNA strand does not match its counterpart on the template DNA strand. Modrich showed which specific enzymes repair such mismatches in prokaryotes and eukaryotes.

"The Nobel Laureates in Chemistry 2015 have provided fundamental insights into how cells function, knowledge that can be used, for instance, in the development of new cancer treatments," the Royal Swedish Academy of Sciences said.

Modrich is the 28th MIT alumnus (and 85th current or former MIT student, staff, or faculty member) to win a Nobel Prize. according to MIT.

—Leon Lin

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Football earns first win in home opener

51-26 win over Maine Maritime comes after losses at season's start

By Yueyang Ying

SPORTS WRITER

Fans, immersed in gray and cardinal, flooded the stands of Steinbrenner Stadium to cheer on the



MIT football team in its first home game of the season. The Engineers notched their first win of the season by an impressive 51-26 score line over Maine Maritime on

the back of a dominant performance from running back Adis T. Ojeda '19, who ran for a mammoth 262 yards including 3 touchdowns.

Despite an upsetting start to the season, highlighted by losses against WPI, Becker College, and Rensselaer, the team managed to pull through. Anthony M. Emberley '17, captain and outside linebacker, described the win as a "great [moment] seeing everyone on the team happy," but added that he was "still eager to do better next week."

Last year, the Engineers won ten consecutive games, culminating in MIT's first NCAA playoff win against Hudson — a historic season for MIT's football program. The team is seeking to uphold its reputation and deliver the same excitement as the previous season. Brian W. Copeland '19, captain and left tackle, claimed that the team's "goal is every week to go out and win on Saturday, or as [the] coaches like to say, going 1-0 every week."

Coach Brian Bubna repeatedly stresses the importance of defending the conference championship to the team. "The team's goal is to make playoffs and win the conference, [then] go as far as we can in playoffs," defensive end Tyler J. Wasser '19 said.

The team holds considerable promise for the rest of the season. While many players are highly skilled at their positions, the chemistry between teammates plays a major role in the team's success. Free safety Riley C. Quinn '19 emphasized the "great chemistry, mental tightness, and work ethic" that helped boost the team's performance. Copeland later added: "Our biggest strengths as a team are our discipline and hard work. Getting into and attending MIT forces you to have these traits and we're able to leverage them on the football field."

"We're working on being consistent throughout the game in all three phases, and the defense especially is putting emphasis on pursuing the football," linebacker Andrew J. Denucci '19 said.

Emberley commented on the team's enthusiasm for the game: "We could [improve on] getting excited about big plays on the field and being 'pumped up' for games." Nonetheless, the team agrees that the fan support from the home game on Saturday was impressive, better than most years in the past.

Laura Yechensky '19 remarked, "A lack of specific student sections makes starting cheers a little more difficult, but MIT's fans love the team." The team hopes for bigger turnouts and greater fan involvement for future home games as the Engineers look to defend their conference title.

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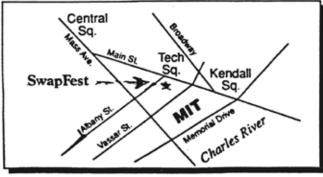
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THURSDAY, OCTOBER 8, 2015 **THE TECH 15**

UPCOMING HOME EVENTS

Saturday, October 10

Field Hockey vs. Clark University 11 a.m., Briggs Field Women's Tennis vs. Smith College 12 p.m., DuPont Tennis Courts Women's Soccer vs. Clark University 1 p.m., Steinbrenner Stadium

Tuesday, October 13

Women's Volleyball vs. Mount Ida College

6 p.m., Rockwell Cage

Wednesday, October 14

Men's Soccer vs. Worcester State University

7 p.m., Steinbrenner Stadium

Frisbee season opens with 1 win, 3 losses

Ultimate hopes to gain experience, defeats Northeastern in tournament

By Margaret Carpenter SPORTS WRITER

The men's ultimate frisbee team opened their season on Sept. 26 with a win against Northeastern at

home. The rest of the day brought three losses for the young MIT team. MIT entered into the tournament hoping to get its rookies some valuable gameplay expe-

rience by competing with top teams from Brandeis, Stonehill, Boston University, and Northeastern.

Evenly matched against Northeastern, who were also focusing on exposing their new players to fullspeed action, MIT was able to seize a win in their first game of the tournament with rookies Andy Wei '19 and Terrance Liang '19 breaking open for several deep scores.

Later on in the day MIT's Jonathan K. Uesato '17 made a diving defensive play to get the disc back for MIT, leading to a score that he assisted over the goal-line. Returning players Paolo Y. Gentili '18, Richard B. Yip '18, and Gil S. Goldshlager '17 made several remarkable plays during the course of the tournament.

"We played very well for our first tournament, and improved a lot throughout the day," co-captain Goldshlager said.

With a young but talented team and several returning players, the MIT men's ultimate frisbee club team has high hopes for this year. "It's just a matter of putting it all together to make a great ultimate team," Goldshlager added. The team continues its fall season with the Lobster Pot tournament in Maine on October 24-25.



RTSSPORTS SPORTSS

Alexandra R. Hrabchak '19 maintains control of the ball during Wednesday's game against Wheaton College.

MIT participates in Westchester Triathlon in NY

MIT closes season with the annual Iron Nerd Super Sprint Triathlon hosted at MIT

By Sam Nicaise TEAM REPRESENTATIVE

On Sunday, Sept. 27, the MIT triathlon team finished the 2015 Northeast Collegiate Conference

Season with the Olympic-distance Westchester Triathlon in Rye, New York. Over 130 collegiate athletes from the

region competed in the three-sport race: the 0.9-mile swim, 25-mile bike, and 6.2-mile

The start horn sounded at the break of dawn to commence the open-water swim in the Long Island Sound. MIT Engineers flew through the bike course, full of hills, horse farms, and smalltown turns. The triathlon finished with a speedy 10k run along the hoardwalk and Peningo Neck neighborhood.

MIT athletes had competed in races earlier in the season across the New England region, including the Lake George, the Challenge Maine, and the Buzzards Bay

Alexander D Springer '16 led the team with 4 finishes. The competitive roster was rounded out by Samuel M. Nicaise G, Cheng Wang '17, Michael A. Feffer '18, Brian D.W. Kirk G, and Lisa Deng '18.

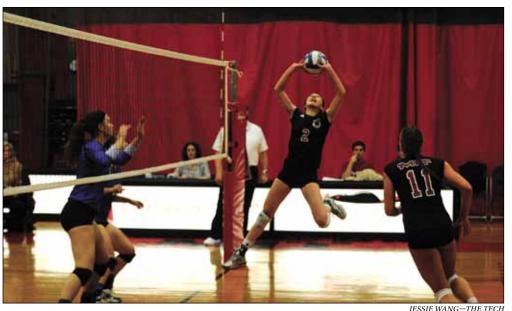
To close out the conference season, the Triathlon Club hosted the annual Iron Nerd Super Sprint Triathlon on west campus on Sunday, Oct. 4. The race was a great success with over 40 finishers despite the gloomy and blustery weather.

MIT Triathlon will continue to train through the winter and compete in off-season local races. In April 2016, MIT athletes will travel to Clemson, South Carolina to compete in the two-day USAT Collegiate National Championships.



JACQUELINE BERGLASS

Members of the MII Iriathalon team pose after the Westchester Iriathlon held Sept. 27 at the Rye Town Park Beach in Rye, New York.



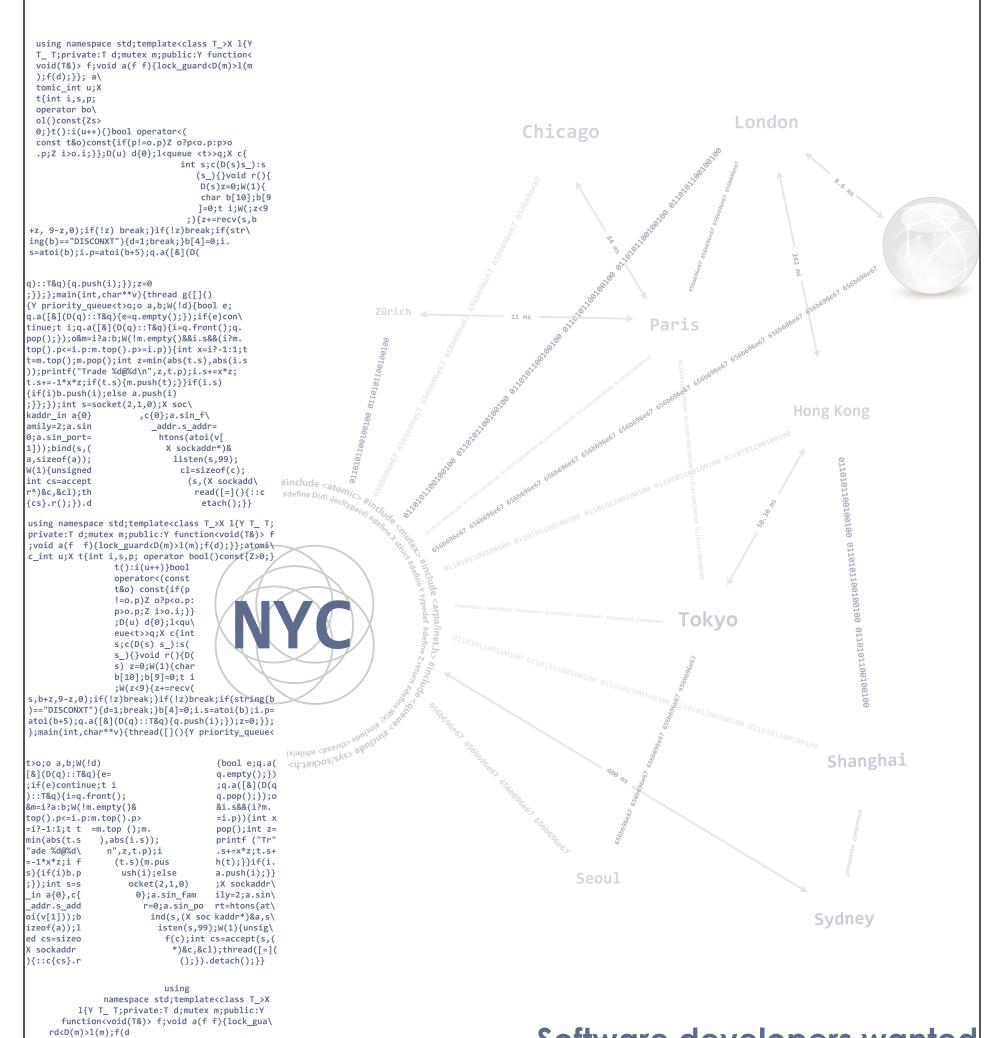
The MIT Engineers faced Wellesley in volleyball this past Tuesday, sweeping the match 3-0.

Do you wish your sport was covered?

Hello, Athletes, look at the sports page, now back to you, now back to the sports page, now back to you. Sadly, your sport isn't there, but if you started writing for The Tech, it could be. Look down, back up, where are you? You're on the front page. Anything is possible when you write for The Tech.

sports@tech.mit.edu

16 The Tech
Thursday, October 8, 2015



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